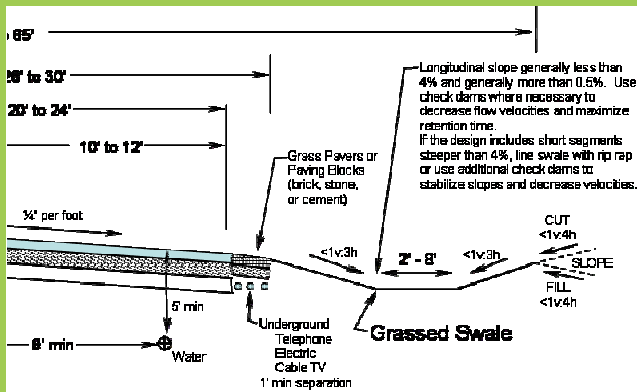


Creating LID-Friendly Communities

Regulation, Evaluation, Collaboration

Timothy Reardon, Regional Planner



Slide show
prepared by:



In coordination with:



Roadblocks to LID

- Lack of Incentives
- Contradictory Standards
- Lack of Communication

Roadblocks to LID

Conventional Roadway Design Standards



Roadblocks to LID

Stormwater Management Standards *Instead of* Intelligent Site Design



Review of Local Codes

Do They Prohibit LID?

Do they Promote LID?

Do they Agree with Each Other?

- Zoning Bylaw and Site Plan Review
- Subdivision Rules and Regulations
- Board of Health Regulations
- Wetland Regulations
- Building Codes

Review of Local Codes

Zoning Bylaw and Site Plan Review

- Dimensional Requirements
 - Limit impervious coverage where appropriate
 - Limit lawn area
 - Allow reduced frontage
 - Reduce setbacks

Review of Local Codes

Zoning Bylaw and Site Plan Review



Review of Local Codes

Zoning Bylaw and Site Plan Review

- Open Space Residential Design
 - Allow OSRD 'by right'
 - Permit LID stormwater system components on land held in common
 - Consider providing density bonus to create incentives
 - Create certainty for developers

Review of Local Codes

Zoning Bylaw and Site Plan Review

- Parking requirements
 - Establish parking maximums
 - Reduce parking requirements near transit
 - Promote shared parking
 - Permit/require smaller parking spaces
 - Permit permeable paving for overflow parking areas

Review of Local Codes

Zoning Bylaw and Site Plan Review

- Site Plan Requirements
 - Allow bioretention areas, swales, etc. to fulfill site landscaping requirements
 - Allow narrow/shared driveways
 - Permit alternative roadway designs
 - Limit extent of site work
 - Require soil rejuvenation and amendments

Review of Local Codes

Subdivision Rules and Regulations

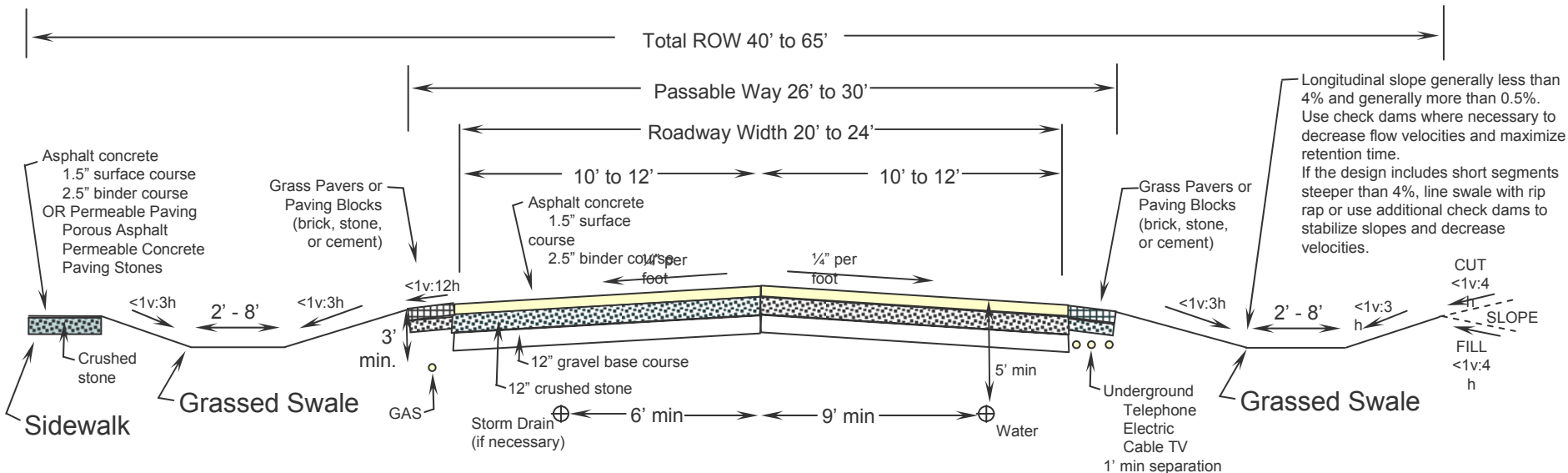
- Roadway Design
 - Permit roadway width of 18-22'
 - Permit flexibility in sidewalk layout
 - Minimize cul-de-sac radii and permit alternative turnaround designs
 - Permit open section roadways
 - Establish design criteria for LID designs

Review of Local Codes

Subdivision Rules and Regulations

Provide alternative design standards

TYPICAL CROSS SECTION LOW IMPACT LOCAL STREET (with permeable shoulder roadway edge option)



Review of Local Codes

Subdivision Rules and Regulations

Provide alternative design standards

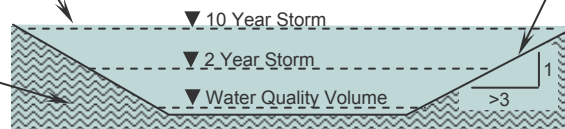
Grassed Swale Detail

SIZING:
Swale should be designed to maintain a minimum residence time of ten minutes for the water quality volume. Runoff velocities should not cause erosion for the 2 year storm event, and the swale should be sized to convey the 10 year storm event.

Underlying soil should be sandy loam with <20% clay content. Augment soil if necessary.

Where driveways cross swales, use a minimum 18" diameter culvert pipe with a minimum slope of 1% to prevent clogging by ice or snow. Use outlet protection at the downstream end of any culverts to prevent scour.

Swales may be parabolic or trapezoidal in cross section. Bottoms should not exceed 8 feet in width.



Swale to be vegetated with uniform, dense cover of grass that can withstand prevailing moisture conditions and winter salt. Recommended species include:

- Tall Fescue (*Festuca arundinacea*)
- Red Fescue (*Festuca rubra*)
- Redtop (*Agrostis alba*)
- Smooth Brome grass (*Bromus inermis*)
- Reed Canarygrass (*Phalaris arundinacea L.*)

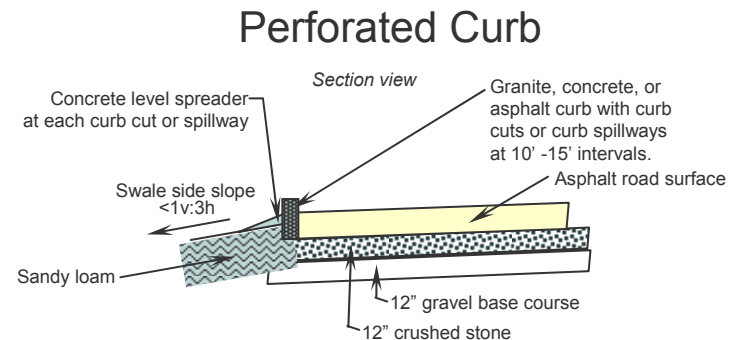
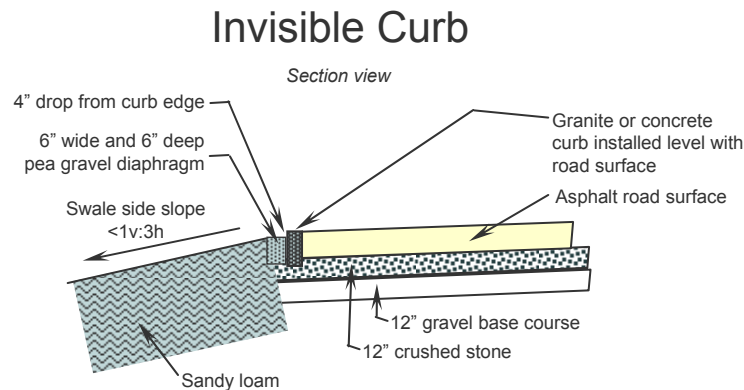
For additional design criteria, refer to Massachusetts Stormwater Management Policy Volume 2 (Technical Handbook) www.mass.gov/dep

Review of Local Codes

Subdivision Rules and Regulations

Provide alternative design standards

ALTERNATIVE ROADWAY EDGES for Low Impact Local Streets



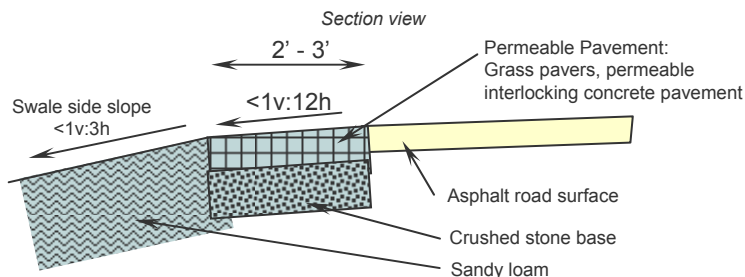
Review of Local Codes

Subdivision Rules and Regulations

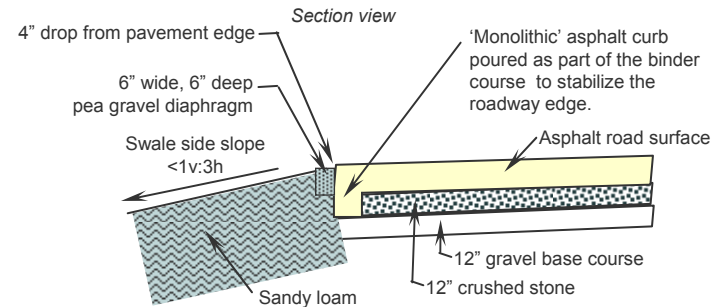
Provide alternative design standards

ALTERNATIVE ROADWAY EDGES for Low Impact Local Streets

Permeable Shoulder



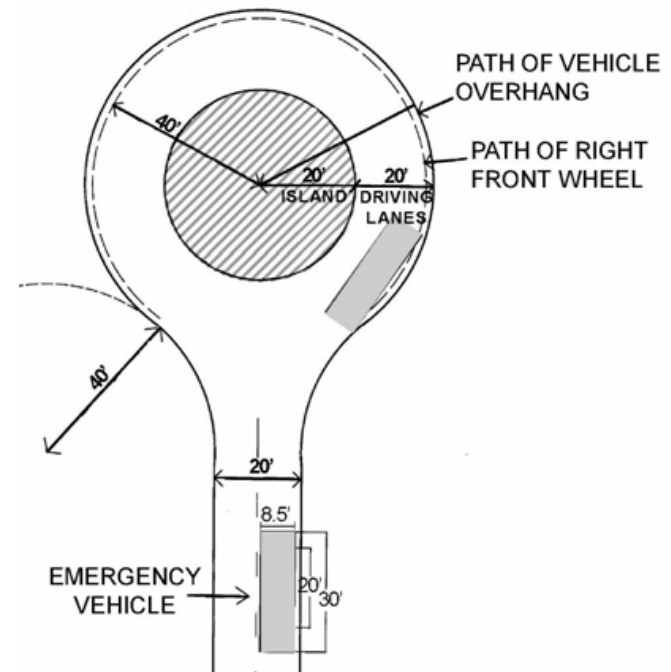
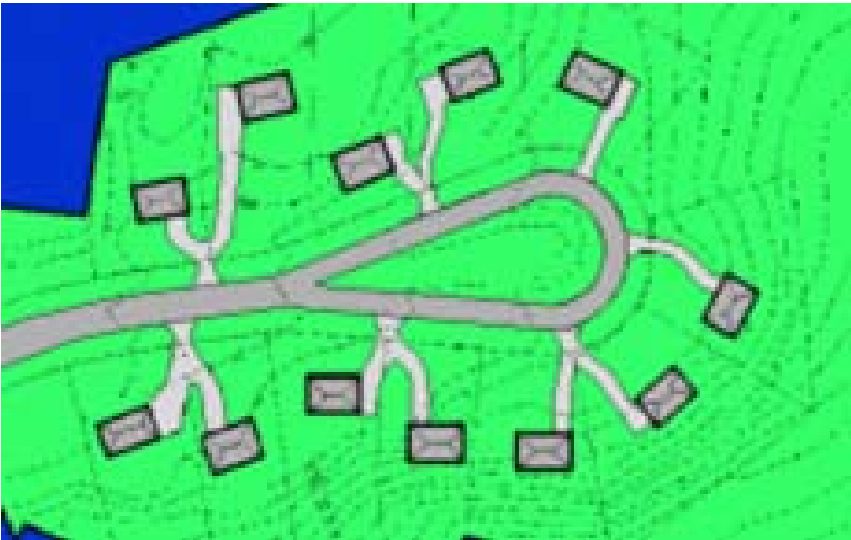
Invisible 'Monolithic' Curb



Review of Local Codes

Subdivision Rules and Regulations

Consider performance standards rather than dimensional requirements



Review of Local Codes

Board of Health Bylaws and Regs.

- Eliminate excessive setback requirements for stormwater infiltration structures
- Re-evaluate necessity for oversized leach fields
- Permit overnight storage of stormwater prior to infiltration

Review of Local Codes

Wetlands Bylaws and Regulations

- Permit use of LID stormwater features within buffers zones

Review of Local Codes

Building and Plumbing Codes

- Ensure local building codes permit use of permeable paving, narrow driveways, green roofs, etc.
- Permit use of harvested rainwater for nonpotable uses
- Make sure DPW has the funding and training necessary to maintain stormwater systems

Stormwater Regulation

Many Approaches

- Stormwater Bylaw--Various Models
- “Low Impact Development Bylaw”
- Erosion Control Bylaw
- Earth Removal Bylaw
- NPDES Phase II bylaw

Stormwater Regulation

Comprehensive LID Bylaw

- Stormwater and Erosion Control Bylaw
 - Volume and rate controls
 - Recharge requirements
 - Address illicit discharges
 - Erosion control requirements
 - Site design and landscaping standards
 - Redevelopment standards
 - Submission and review requirements

Collaboration is Critical!

Stakeholder Involvement— Early and Often

- Local regulatory boards and commissions
- Public works officials
- Fire department and emergency response
- Developers and builders
- Consultants and engineers
- Business interests and property owners
- Environmental advocates

For more information, visit:

www.mapc.org/lid

home of the

MASSACHUSETTS LOW IMPACT DEVELOPMENT TOOLKIT

- Fact sheets
- Brochures
- Local codes checklist
- Frequently asked questions
- Internet links and resources